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## **EUROPEAN PATENT APPLICATION**

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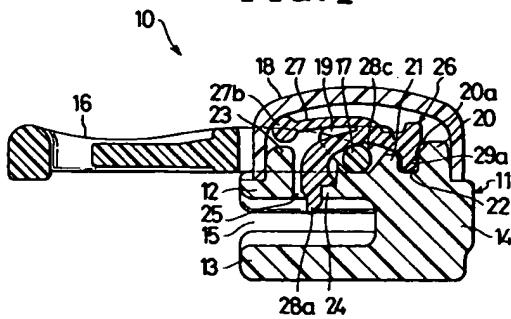
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**54 Automatically locking slider for slide fasteners.**

(57) An automatically locking slider (10) for slide fasteners is formed from a moldable plastics material and provided with an integral polygonal locking structure (26) including a spring portion (27), a locking prong portion (28) and an anchoring portion (29). The spring portion (27) is relatively short in length and has at one of its ends a bulged or ball-like projection (27a) extending outwardly beyond the region of the locking prong portion (28) for abutting engagement with the inner wall of a cap (18).

**FIG. 4**



This invention relates to a slider for slide fasteners and has particular reference to such a slider which can lock itself automatically upon the slide fastener.

There are known a great many automatically lockable sliders adapted to open and close slide fasteners or zippers applied to various garment articles. The majority of conventional automatically locking sliders are fabricated from a metallic material and provided with locking means comprising a locking member and a resilient member typically in the form of a leaf spring, the two members being separately accommodated within a cap-like housing over a slider body. Assembling such sliders is rather tedious, as the resilient member is required to be carefully held in abutting engagement with the inner wall of the housing and accurately positioned relative to the locking member to ensure proper operation of the latter.

Advanced sliders of the automatic type are disclosed in Japanese Utility Model publications Nos. 46-4268 and 46-4269 in which the slider is provided with a leaf spring integrally joined at one end to a locking member and folded back toward the opposite end to bear against the upper inner wall of a casing. Although this leaf spring is integrally formed with the locking member, it is elongated such that its resilient strength is reduced, leading to a malfunctioning locking operation of the slider.

A common problem with automatic locking sliders incorporating metallic leaf springs is that they are costly due to the use of relatively expensive resilient material.

With the foregoing difficulties of the prior art in view, the present invention seeks to provide an automatically locking slide for slide fasteners which is made of a moldable synthetic resin.

The invention also seeks to provide an automatically locking slider for slide fasteners incorporating structural features such that a locking member can be supported stably in position against displacement relative to the slider body and can perform its locking action effectively with the aid of adequate spring action.

According to the invention, there is provided an automatically locking slider for slide fasteners which is formed from a moldable plastics material and which comprises a slider body having an upper shield and a lower shield spaced apart in parallel and interconnected at one of their ends by a connecting head to define therebetween a guide channel; a pull tab having a pintle pivotally supported on said upper shield; a locking member for releasably locking the slider with respect to the fastener; and a cap secured to said upper shield and encasing said locking member, said locking member comprising an integral polygonal structure

including a spring portion having a relatively short arcuate arm with a bulged end, a locking prong portion having a locking prong and a reduced neck merging with said arm and engageable with said pintle and an anchoring portion remote from said locking prong for anchoring said locking member relative to said slider body.

The above objects and features of the invention will be better understood from the following detailed description taken in connection with the accompanying drawings illustrating by way of example a preferred embodiment.

Figure 1 is a plan view of a slider embodying the invention;

Figure 2 is a side elevational view of a locking member of the slider;

Figure 3 is a bottom plan view of the locking member;

Figure 4 is a longitudinal cross-sectioned view taken on the line IV-IV of Figure 1; and

Figure 5 is a side elevational, partly sectional, view of the slider with the locking member removed.

With the various parts of the slider 10 assembled together as shown in Figure 4, the pull tab 16 may be lifted about the pintle 17 against the tension of the spring portion 27 of the locking member 26 so that the locking prong 28a is retracted from the guide channel 15 to permit movement of the slider 10 in either direction in the well known manner. Releasing the pull tab 16 readily brings the locking prong 28a back into the passage of the fastener stringers in the guide channel 15 under the influence of storing resilient action of the spring portion 27, thereby automatically locking the slider 10 with respect to the fastener stringers. Obviously, various modifications and variations of the present invention are possible in the light of the above teaching. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than specifically described.

#### Claims

1. An automatically locking slider (10) for slide fasteners which is formed from a moldable plastics material and which comprises a slider body (11) having an upper shield (12) and a lower shield (13) spaced apart in parallel and interconnected at one of their ends by a connecting head (14) to define therebetween a guide channel (15); a pull tab (16) having a pintle (17) pivotally supported on said upper shield (12); a locking member (26) for releasably locking the slider (10) with respect to the fastener; and a cap (18) secured to said upper shield (12) and encasing said locking member

(26),

CHARACTERIZED IN THAT said locking member (26) comprises an integral polygonal structure including a spring portion (27) having a relatively short arcuate arm (27a) with a bulged end (27b), a locking prong portion (28) having a locking prong (28a) and a reduced neck (28c) merging with said arm (27a) and engageable with said pintle (17) and an anchoring portion (29) remote from said locking prong (28) for anchoring said locking member (26) relative to said slider body (11).

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2. An automatically locking slider (10) according to claim 1 characterized in that said bulged end (27b) of said spring member (27) is in the form of a spherical ball.

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3. An automatically locking slider (10) according to claim 1 characterized in that said bulged end (27b) extends outwardly beyond said locking prong (28a).

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4. An automatically locking slider (10) according to claim 1 characterized in that said reduced neck (28c) is located intermediate between said locking prong (28a) and said an anchoring portion (29) for engagement with said pintle (17).

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5. An automatically locking slider (10) according to claim 1 characterized in that said locking member (26) is formed from a moldable plastics material.

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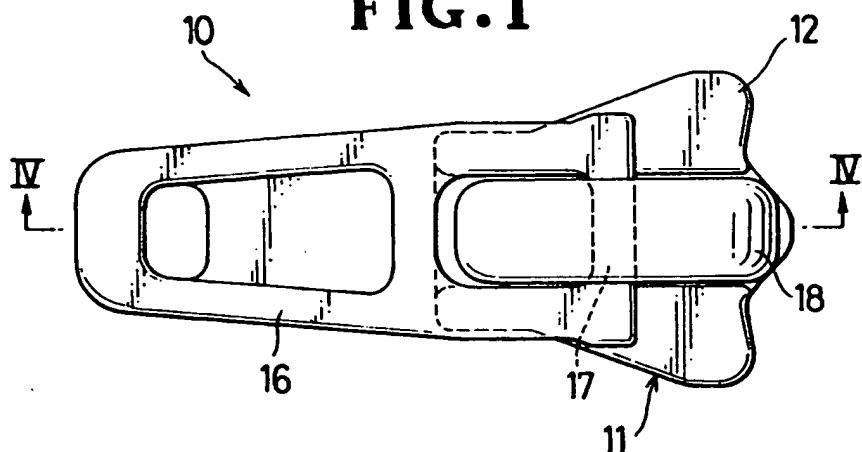
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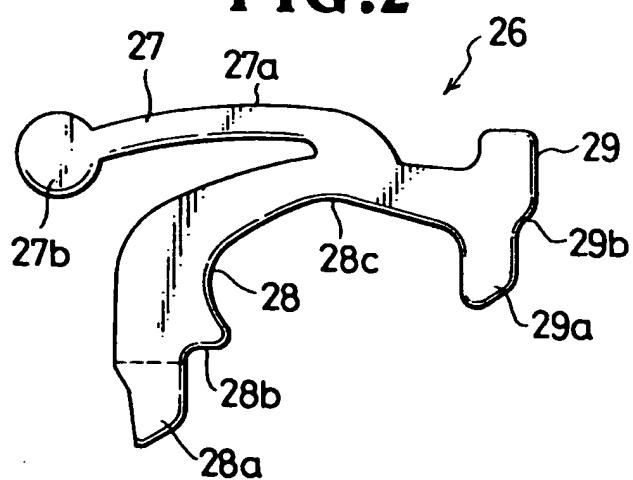
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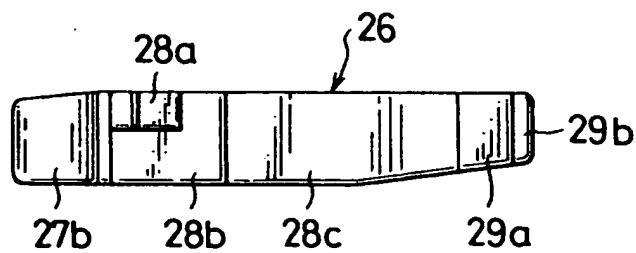
**FIG.1**



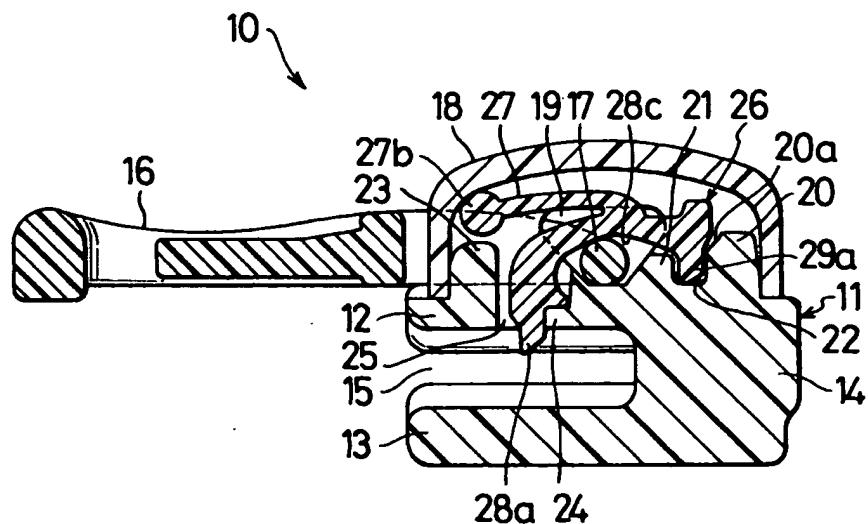
**FIG.2**



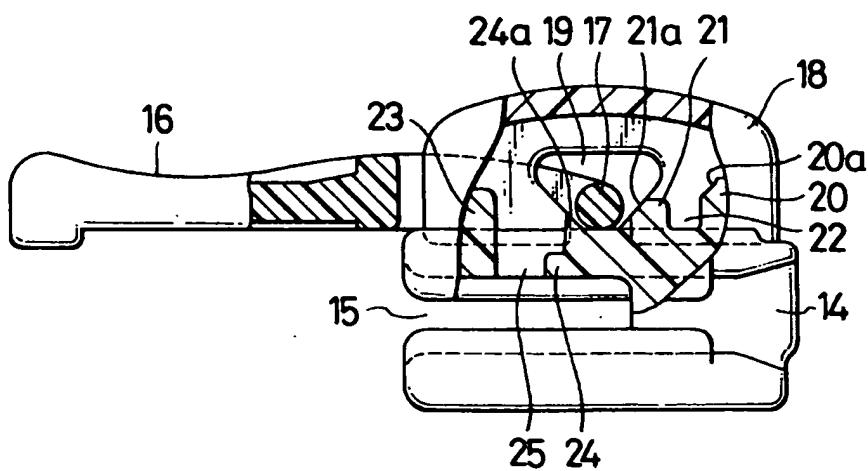
**FIG.3**



**FIG.4**



**FIG.5**





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## EUROPEAN SEARCH REPORT

Application Number  
EP 94 10 0815

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CLS)
A	EP-A-0 365 910 (YOSHIDA KOGYO K.K.) * figures 4,5 *	1	A44B19/30
A	CH-C-572 718 (YOSHIDA KOGYO K.K.) * figures 1,4 *	1	
A	FR-A-2 174 848 (OPTI-HOLDING AG.) * figures 3-8 *	1	
<b>TECHNICAL FIELDS SEARCHED (Int.CLS)</b>			
A44B			
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	25 May 1994	Fairbanks, S	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- A : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			